

Amendments to the Specification:

Please replace the paragraph beginning at page 5, line 7 with the following amended paragraph:

Referring to FIG. 3, a data structure 70 includes a large table 72 at the root, branching to small tables 74, called trie tables. A traversal proceeds in parallel on the two trees, using pipelined reads. Each trie table 74 is addressed by a span of IP destination address bits to locate an indexed table entry. Each indexed trie table entry can optionally contain a route entry pointer and a pointer to the next table. Each trie table 74 contains prefix match fields 80 for each indexed entry, a population count of pointers 82, and hidden prefix entries 84 that hold shorter prefix route entry pointers. A leaf entry is copied to other leaf entries in the same trie table 74 to enable matches on multiple IP destination addresses, yielding the route entry that has the longest prefix match. Hidden entries are copied to shared memory entries when a longer prefix entry is deleted.

Please replace the paragraph beginning at page 10, line 18 with the following amended paragraph:

Referring to FIG. 6, a longest prefix match look-up process 150 includes performing 152 two parallel depth-wise tree searches, one starting at the hi64k table, and the other starting at the hi256 table. A longest prefix match look-up utilizes the tables set up by the route add process 100. First table lookup, tree nodes represent 4 bits of address. Each lookup includes 2 halfwords, i.e., a possible pointer to the route entry (rt_ptr_long and rt_ptr_short), and a possible pointer to the next node in the tree (trie_ptr_long and trie_ptr_short). The process 150 determines 158 whether there is a trie_ptr. If no trie_ptr exists, the resulting rt_ptrs are compared 156. The process 150 determines whether the rt_ptr_long is non-null. If non-null, the process 150 selects 160 the prefix as a match. If

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rt_ptr_short is non-null, it is the match. If rt_ptr_short is ~~non~~-null, process 150 reports 162 no match.